Justin Hershberger

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Assignment 6

1. Threads are able to run parallel whereas processes require more resources since they need to run separately. Each process only has access to the resources designated to that process and threads share resources between each other.
2. Threads share the resources of the process they belong to and process require allocating resources each time one is created.
3. Concurrency supports more than one task by allowing all tasks to progress. Parallelism is when a system can perform more than one task simultaneously.
4. Identifying tasks, Balance, Data splitting, Data dependency, Testing and debugging
5. Many-to-one model
6. You can have problems with child processes, there are zombie processes which are not properly killed children. These will continue to take up resources. The way to solve problems with processes is to be extremely careful and know where you are at in your process and use the wait() function to clean up child processes
7. When several processes are allowed to access and manipulate the same data concurrently and execution depends on the order access takes place.
8. A mutually exclusive section, no other processes can act on the critical section.
9. Starvation is when several processes are accessing the same critical section but some never get access to it so the process starves. Deadlock is when one process gets access to a critical section and never lets it go so no other process can use it.
10. Average pre-emptive wait time: 4.5 seconds. Average non-pre-emptive wait time: 3.5 seconds.
11. The convoy effect is meaning that processes are handled by a first come first serve basis which is similar to traffic.
12. Allow a process to only pick up what it needs to acquire the critical section, if they can’t get everything then they put it down.
13. Odd numbered processes pick up their “left chopstick first and then their right” while even numbered processes pick up “right then left”
14. It allows for the binding of a process or thread to a certain CPU so you can assign processes how you want them. This approach allows you to utilize your resources how you want them but it is complex to implement.